

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
17 March 2005 (17.03.2005)

PCT

(10) International Publication Number  
**WO 2005/024729 A1**

(51) International Patent Classification<sup>7</sup>: **G06T 17/00**,  
A61B 8/12, 6/12

(21) International Application Number:  
PCT/IB2004/051525

(22) International Filing Date: 23 August 2004 (23.08.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
03102691.7 4 September 2003 (04.09.2003) EP

(71) Applicant (for DE only): **PHILIPS INTELLECTUAL  
PROPERTY & STANDARDS GMBH** [DE/DE]; Stein-  
damm 94, 20099 Hamburg (DE).

(71) Applicant (for AE, AG, AL, AM, AT, AU, AZ, BA, BB, BE,  
BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CY, CZ,  
DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM,  
HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,  
LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,  
NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD,  
SE, SG, SK, SL, SY, SZ, TJ, TM, TN, TR, TT, TZ, UA, UG,  
UZ, VC, VN, YU, ZA, ZM, ZW only): **KONINKLIJKE  
PHILIPS ELECTRONICS N. V.** [NL/NL]; Groenewoud-  
seweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

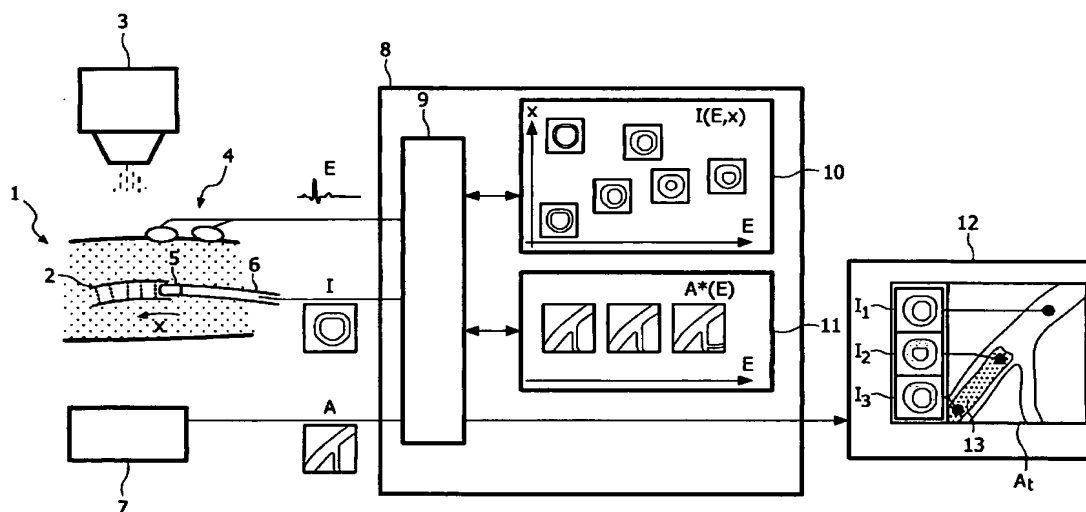
(75) Inventors/Applicants (for US only): **ECK, Kai** [AT/DE];  
c/o Philips Intellectual Property &, Standards GmbH  
Weissshausstr. 2, 52066 Aachen (DE). **MARTIN-LEUNG,  
Barbara** [ES/DE]; c/o Philips Intellectual Property &,  
Standards GmbH Weissshausstr. 2, 52066 Aachen (DE).  
**BREDNO, Jörg** [DE/DE]; c/o Philips Intellectual Prop-  
erty &, Standards GmbH Weissshausstr. 2, 52066 Aachen  
(DE). **WEESE, Jürgen** [DE/DE]; c/o Philips Intellectual  
Property &, Standards GmbH Weissshausstr. 2, 52066  
Aachen (DE).

(74) Agent: **VOLMER, Georg**; Philips Intellectual Property  
&, Standards GmbH Weissshausstr. 2, 52066 Aachen (DE).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,  
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,  
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,  
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,  
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,  
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,  
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,  
ZW.

[Continued on next page]

(54) Title: **DEVICE AND METHOD FOR DISPLAYING ULTRASOUND IMAGES OF A VESSEL**



(57) Abstract: The invention relates to a device and a method for displaying a vessel (2) with the aid of intravascular ultrasound images (I). A sequence of intravascular ultrasound images ( $I(E,x)$ ) is generated by means of a probe (5) and stored in a memory (10) in a manner indexed by the associated location (x) where they were generated and also the associated heartbeat phase (E) and/or breathing phase. During a subsequent medical intervention, those ultrasound images ( $I_1, I_2, I_3$ ) which best correspond to the heartbeat phase of a current fluoroscopic image ( $A_t$ ) or belong to the current stopping location of a catheter (13) can be selected from the memory (10) and displayed on a monitor (12).



(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

**Published:**

— *with international search report*